STAFF STUDY

This paper is a Staff Study of the [redacted] system design. [redacted] important difficulty with the System is that the scope of the program is undefined. The Research and Development and Operational objectives are too general, because, at least by inference, the program serves to solve essentially all intelligence problems--which it does not do. This method of definition makes it compatible with, and not compatible with all other systems, at the same time.

The Staff Study, therefore, starts out with indicating the defining lines for a reconnaissance satellite. It explains which problems can be expected to be solved by such a device and which problems should better be solved by other specialized systems. This section covers such questions as the number of satellites required to affect the surveillance of points and areas for specified lengths of time. This group firmly believes that every facet of the intelligence problem is difficult and requires a special method of solution which specifically solves that problem. We find single all purpose methods inadequate to solve the requirements of the varied tasks involved.

The second part of the Staff Study concerns itself with a realistic performance evaluation of this reconnaissance satellite. The numbers and method which characterize the performance of the space system given in past engineering reports appear unrealistic to us, that is, too optimistic, and therefore, leads to, among other things, "Sub System I Ground Data Handling Equipment" (although it can be built), which is much too

sophisticated and complex for the type of [illegible]. It will always be. It is better to go in easy steps since the ground equipment can always be produced reliably in time as compared with the space systems. In this way the very sophisticated ground equipment, if required, will be available when the input material warrants it.

This section also indicates the questionable technical decisions made with regard to film scan direction and the attendant system problems which these bring. Reference the "C" program solution which is solving the panoramic camera problem in a more or less practical way. The camera package and camera system parameters and approach, viewed from the technical advances to date, are obsolete and consideration should be given to abandon completely the concepts and start again. The special projects given more than adequate technical experience on how to continue. It is felt that no short paper can adequately explain how obsolete the camera system and operation cycle are, as such, a complete re-evaluation is in order.

With further reference to the ground data reduction for the SAMOS system, our attitude is that automated processes are important in numerical handling; such as: Triangulation, Analytical or numerical bridging, etc. But this group feels just as violently that the P.I. should not, and cannot, be "separated" from the film in the searching process. Searching photographic films is still very much an art and depends upon the experience, knowledge and skill of the searcher. Sterilising his attitude toward the picture material by making him guide a so-called "automatic" will only serve to limit the

[redacted]

The last part of [redacted] deals with [redacted] link transmission. [redacted] that recovery is still the [redacted] required. The analysis [redacted] information content [redacted] 850 [redacted] on the [redacted] reconnaissance [redacted] measurement and [redacted] to develop positions good to one mile [redacted] readout with its attendant sweep linearity problems. Experience indicates this figure unrealistic.

This study indicates that [redacted] are warranted:

(1) What [redacted] several [redacted]

a. [redacted]

b. When [redacted] graphs [redacted] section of this [redacted] the graphs [redacted]

c. [illegible] electronic [illegible]

[illegible]-off [illegible].

d. The computer [illegible] frequently [illegible] anything but a pre-programmed operation feasible; that is, computer [illegible] average time to get a picture [illegible] computer failure.

(2.1) If readout is to be considered

a. Study the jamming problem

1) Even when the receiver is in the U.S. - that is, [illegible] the radio power required by a ship off-shore to jam.

(3) Ground Data Handling

a. A practical study to develop an inexpensive, realistic, ground data plant, involving more than platitudes, run by bright, experienced, imaginative people that will actually develop material specifically filtered to a particular command. The attempt should not be a plant designed to be operated by run of the mill persons but rather analysts with professional status.

In conclusion, this study shows SAMOS to be what it should be, a research and development program. In this context it can be instrumental in developing the equipment and methods for future operational programs.